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ABSTRACT

This publication is designed to present information to the faculty of the University of Missouri on an updated Educational Teleconference System (ETS) which operates from that campus and to encourage them to use that system in future teaching activities. Introductory materials provide a brief overview of the history of educational uses of the telephone and a discussion of the research completed in that area, including typical examples of the expanded use of an educational telephone system. The remaining material is divided into these sections: (1) a description of the University of Missouri's Educational Teleconference System (ETS); (2) general guidelines for using the ETS; (3) specific questions for faculty who use the ETS; (4) student materials and teacher lesson plans for a typical lesson using the ETS; (5) a reaction questionnaire for UMC faculty; and (6) a list of references. Three organizational models provide an illustration of the communication patterns possible with the ETS, and photographs of the system and its utilization are included. (JB)

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UMC'S Educational Teleconference System

Exploring New Possibilities for Instruction

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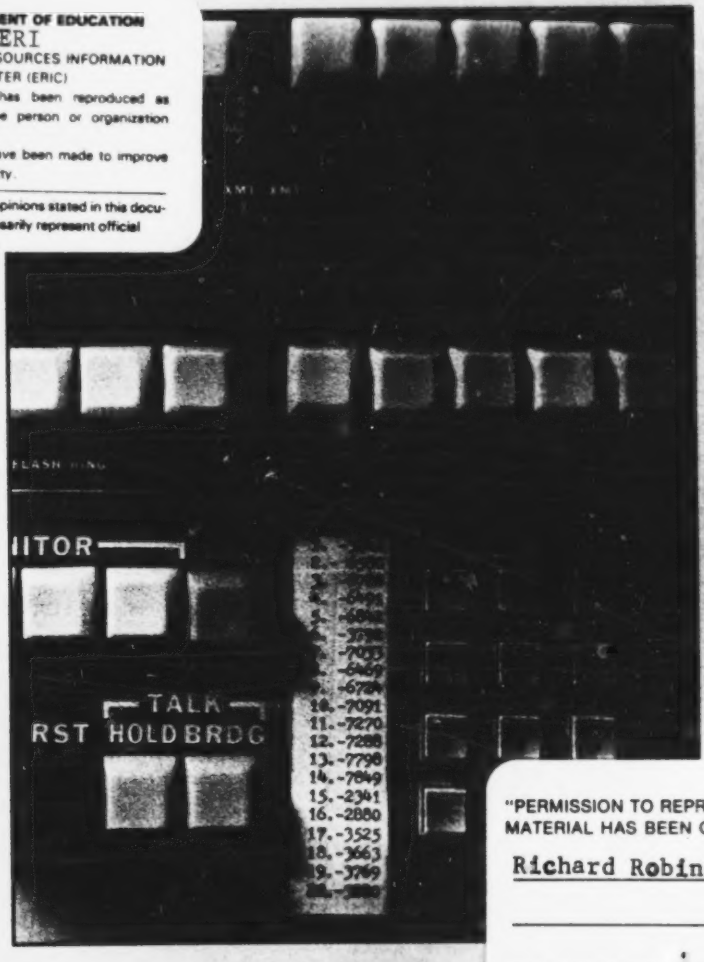

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Richard Robinson

Extension Division—University of Missouri-Columbia
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Foreword

Technology has always played an important role in education—from the advent of written language, to moveable type, and to recorded sight and sound. The development of technology has made it possible to communicate all over the world quickly and cheaply.

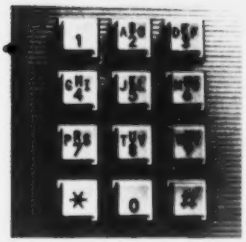
The uses of this technology have been a challenge to communicators and educators. The educational uses of the telephone are special challenges. Technology will determine the limits of what **can** be done, but only the ingenuity of its users will determine what **will** be done and with what effectiveness. This is what this publication is all about. While it does deal to some extent with the technical potential of the system, it will help you organize and design educational material, and develop teaching strategies for the most effective use of this technology.

This monograph is a good beginning which we believe will be useful to anyone planning to teach with the telephone system. The author requests suggestions and new materials on organization and teaching strategies .

This publication has information which will be useful to both the neophyte and the veteran. We hope that all faculty who plan to use educational telephone will benefit from this material. We especially want to encourage the extension faculty—both the Cooperative Extension Service and the University Extension Division—to use the system for non-credit and credit teaching. Please use the questionnaire to provide your feedback.

Charles H. Koelling
Associate Dean
College of Education

Donald W. Fancher
Associate Vice Provost
Extension Division



Introduction

The primary purpose of this publication is to present information to the faculty of the University of Missouri on the recently updated Education Teleconference System (ETS) which is operated from this campus. In doing so, it is hoped faculty members might begin to think of possible ways they could include the ETS in future teaching activities.

Because the ETS is a new approach to instruction for many people, a brief overview of the history of the educational uses of the telephone is included as well as a discussion of the research that has been completed in the area. Suggestions on the development of various learning activities are also discussed emphasizing needed modifications that should be considered when using the telephone. The material is divided into these sections.

I. Brief overview of Telecommunications in Education

II. Description of the UMC's Educational Teleconference System

III. Using the Educational Teleconference System

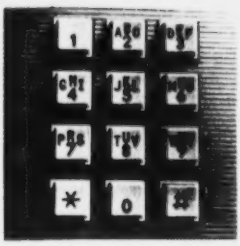
IV. Sample Lesson Materials For Use With the Educational Teleconference System

   A. Student Materials

   B. Teacher Lesson Plans

V. References

VI. Reaction Questionnaire



Brief Overview of Telecommunications In Education

Traditionally, the telephone has been used primarily as a medium of communication between two individuals. While this still accounts for a major percentage of operation time today, a number of alternate services are now being developed that have major implications for the educational community.

Perhaps the most significant changes in recent years have been the advances made in the electronic hardware now available for telephone instruction. New telephone equipment allows a great deal of flexibility, not only in the number and the size of the groups that may participate, but also in the complexity of interrelationships of discussion between various grouping patterns. The sophistication in hardware has brought with it a multitude of challenges for those program planners and teachers who see the great potential in the telephone as an instructional tool.

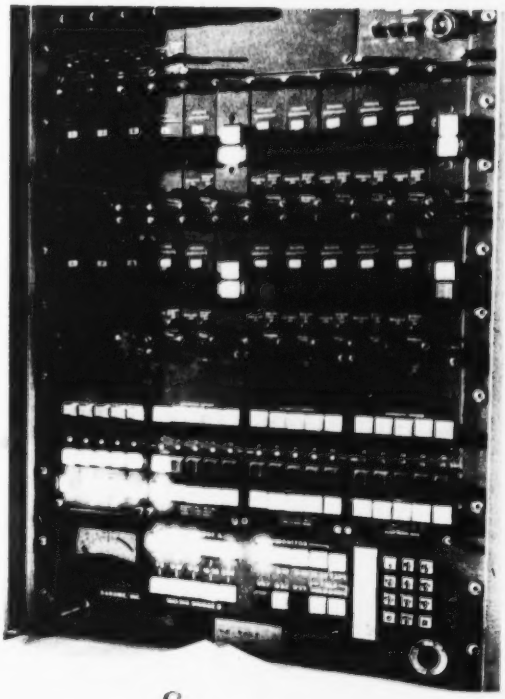
The first use of the telephone as an integral part of an educational program was during the late 1930's (Rao and Hicks, 1972). Typifying a number of later applications of the telephone to instruction, this initial project provided a direct link between special education classrooms and homebound students in Iowa. Since this date a number of researchers (Paul, 1965; Collins, 1966; Yeomans and Lindsey, 1969; Parker and Monson, 1980) have noted the increased use of the telephone in a wide variety of programs.

One of the first colleges to use the telephone for instruction on an extended basis was Stephens College, beginning in 1958 (Hartje, 1976). Used at first to bring notable people into the classroom through the telephone as guest lecturers, this program rapidly expanded into the use of tele-lectures in a variety of courses. (Burkhart, 1963; Rubin, 1964; Jolly and Madden, 1965).

Numerous other colleges and universities quickly saw the

(Above) The control room for the University of Missouri's Educational Teleconference System along with two broadcast-quality studios can be joined into the bridge. In addition, the output of the bridge can be broadcast over the SCA of KBIA-FM radio.

(Right) This bridge, located in 301 Whitten Hall, UMC, can join 20 telephone lines and a radio recording studio for teleconferencing. Controls allow the bridge operator to place calls, answer incoming calls, record proceedings, monitor teleconferences, and adjust excessive line noises.



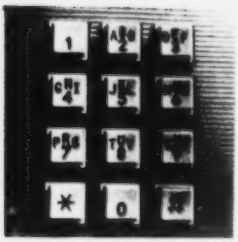
advantages of this approach and developed a variety of programs. The most notable example was and has been the University of Wisconsin's Education Telephone Network.

As originally conceived, most educational telephone networks were designed to be used for both credit and non-credit classes. But, as the systems grew and the electronic equipment became more advanced, the role of these telephone systems also began to change (Parker and Monson, 1980). Rather than simply being used as a part of classroom instruction, the typical educational telephone network of today is a vital element in the total university program. Typical examples of this expanded use of an educational telephone system are

- **Conducting staff conferences**
- **Teaching short courses**
- **Following audio-visual presentations with questions and answers**
- **Bringing guest experts into meetings**
- **Training staff, clientele, the public**
- **Conducting a survey**
- **Distributing crisis information**
- **Holding committee meetings**

As noted by Parker and Monson, 1980, ". . .the general trend for teleconference systems is toward greater refinement and expanded potential."

There has always been the question of the effectiveness of this approach as opposed to more traditional delivery systems. In the last few years, a number of research studies have asked this question. Using a variety of school settings both in the elementary and secondary schools (Jesser and Clark, 1966; Rookey, *et. al.* 1971; Gold, 1973) as well as post-secondary institutions (Hoyt and Frye, 1972; Spears, 1971; Conlin and Borich, 1977), the general conclusions state the use of the telephone as an aide to instruction "with proper design of program materials" (Parker, 1968) has been as effective as traditional instruction and in some cases even shown better results.



Description of UMC's Educational Teleconference System

The ETS is a two-way audio network that uses regular telephone lines. Through the use of bridging equipment located in Whitten Hall on the UMC campus, up to 20 locations can be linked together in various grouping patterns with telephones located anywhere in the world. Adding to the flexibility of this system is the Mini-Convener which consists of a portable amplifier/speaker and four microphones which may be used on any regular telephone jack with a portable telephone. These units, located in each of the Extension program areas throughout the state, enable a group of people to participate at any one location.

Here are some typical organization models for the ETS.

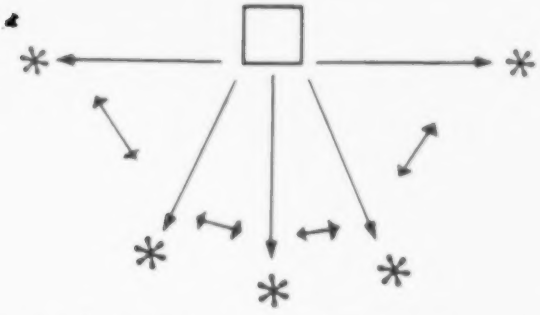
One Location

Columbia

In this arrangement, one person or group of individuals can communicate with the Columbia campus.

Numerous Locations

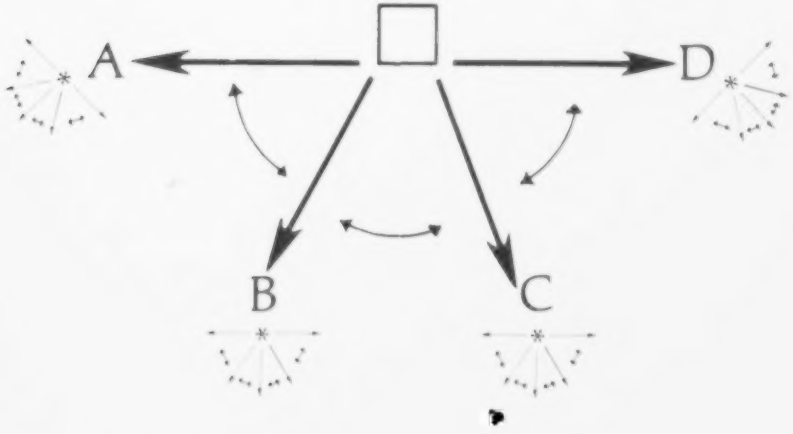
Columbia



This pattern allows up to 20 locations to be connected with the facilities in Columbia. Not only is there communication between each site and Columbia but also interaction is possible among each of the remote locations.

Subdividing Locations

Columbia



Clustering of four separate groupings is also possible using the ETS. Were there a reason to divide an audience for discussion into subgroups this particular arrangement allows a great amount of flexibility. Examples of possible groupings include. . .10&10. . . 5&15. . .5&5&10. . .or 5&5&5&5.

Participants who experience any difficulty during a conference can call 314-882-3303 to reach the bridge operator on the ETS trouble phone.

A specific example can help illustrate the potential of possible organizational patterns.

Recently, students at two separate locations in the state were taught from the Columbia campus using the ETS. During one of the sessions a state department of education official from Jefferson City was called at his home for input on a specific topic. In addition, one of the students was unable to come to the class because of a medical problem but was able to participate from her home. In this example, Columbia, Jefferson City, the two class locations, and the student at home were all interconnected so that each was able to hear and speak with all the others.

This particular class typifies the great flexibility which is possible with the ETS. Experts on various topics can be consulted from any geographic location as long as they have access to a telephone. On the campus, UMC faculty do not even have to go to Whitten Hall when using the ETS but can be called at their offices or even at home if this is more convenient. It would seem the potential for this system is endless.

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To effectively use the ETS one must consider the particular conditions that are associated with learning and this form of communication. While there are a great number of similarities between traditional classroom teaching and instruction with the ETS, there are also some unique differences.

Several general principles as well as some specific suggestions on the use of the ETS will be presented. Much of this material is based on the work that has been done at the University of Wisconsin-Madison and is reported in the excellent reference, *Bridging the Distance: An Instructional Guide to Teleconferencing* (Monson, 1978). It is recommended for those interested in a more detailed presentation on the development of ETS instructional programs.

General Guidelines For Using the ETS

- **The instructor-participant interaction must be effective.**

  No matter how efficiently the equipment may work when using the ETS or how prepared both the teacher and the students may be, very little can be accomplished when there is a lack of communication between each party. To enhance better interaction between each of the participants during a program using the ETS the following guidelines might be considered:

  A. Students should be aware of how to use the equipment and be given a chance to use it at each session.
  B. The teacher should call on students by name.
  C. The class members should be aware of what they need to prepare for each class in terms of outside reading and other requirements.
  D. The teacher should attempt to know the educational background and current teaching status of each of the students in class. (This information can be collected through a questionnaire at the beginning of class).
  E. The class members should know and understand the format of each class before it begins.

- **A variety of approaches and activities should be used during each class period.**

  Almost any learning situation becomes more effective when the content is presented in varied ways. This is especially true when using the ETS as the means for communication. To simply rely on a lecture for an entire period without opportunity for discussion would probably prove to be a rather inefficient approach to the ETS.

Because of the flexibility of the ETS, variety is often a part of any program activity. Here are some possibilities.

* Lecture (probably limited to no more than 10-15 minutes without a change in format)
* Panel discussion (members not limited to one location)
* Interview or presentation from guest authority
* Audio-taped material
* Brief case studies from the members of class
* General discussion on a topic between instructor and students.
* Each class location could discuss one aspect of a topic among themselves for a specific amount of time and then report to the total group.

- **Preparations should be completed for efficient handling of procedural matters between each class location and the instructor.**

It often helps to select one student at each class location to act as a liaison between the class and the instructor. This person could help with the following:

* Materials do not have to be sent to each student but rather to one specific person for distribution.
* Student work such as class assignments on term papers, can be collected and mailed to the instructor as a group rather than separately. (Sufficient postage should be provided.)
* During the actual class using the ETS the liaison member can act as the focus point for the instructor during discussion periods. This is not to say these people should have additional responsibility or always have to answer questions, but they could provide the instructor needed information on how the class is reacting to the discussion. Perhaps there was some misunderstanding or the group needs additional time before they can respond. Whatever the situation, the liaison member could report these conditions to the instructor.

Specific Questions for Using the ETS

The following questions are typical of those that are often asked by people who are interested in developing educational programs using the ETS.

- **How can I make my class presentations effective with the ETS? After all, I can't even see the people in class to know their reaction to what I am doing.**

Panel of educators use the Whitten Hall studio of the Educational Telephone System to reach groups of students assembled in various locations throughout the state.

This is perhaps the number one concern of most people who are considering the use of the ETS. It is obvious that because the instructor cannot actually see the members of the class a certain amount of communication will be lost. Despite this potential problem the instructor, with careful planning of each session, can make the ETS an extremely effective approach to education. (See the chapter "Sample Lesson Plan Using the Educational Teleconference System" for recommendations on developing lesson materials.)

Consider these suggestions when preparing class presentations to be used with the ETS.

- Organize your material in such a way that there is frequent opportunity for the class members to ask questions, clarify specific points or add to the general discussion.
- Prepare your class for the subsequent discussion by very carefully outlining what you are about to do. This, if done properly, should give each member of the group a mental framework of your presentation.

- Provide a variety of approaches such as lecture, panel discussion, outside speakers and printed materials.
- Actively encourage various discussion arrangements within the total group depending on the number of class locations and persons at each site. Possibilities include:
  1. Teacher with the total group.
  2. Remote sites discuss with each other.
  3. Remote sites discuss independently of either the teacher or other locations. Once these discussions are completed have a general sharing of conclusions by the total group.
  4. Panel discussion using people either from one location or composed of those from various remote sites.
  5. Using outside speakers in a variety of ways with the above groupings.

- **What considerations must I take into account when deciding on the use of materials, for example, handouts and overheads, with the ETS?**

  The use of printed materials and audio-visual aids can make a vital contribution to the effectiveness of almost any educational activity presented with the ETS. While these supplmental materials, such as class outlines, bibliographies, overheads and films, have always been a part of most classes they play an especially important role when using the ETS.

  The following are several suggestions on the use of written materials and audio-visual aids with the ETS:

  - Timing is critically important with supplemental materials. In some cases, these resources must be prepared and distributed to the students several weeks in advance if they are to be used effectively.
  - Preparations must be made so materials such as films or overhead slides can be shown at each remote location. This requires someone to be responsible for securing the proper equipment and to know when and in what way to use the materials during each class presentation.
  - Following the completion of each teleconferencing session it is often helpful to summarize the important aspects of the discussion and distribute these results to each class member. It is also a good opportunity to suggest appropriate activities, such as necessary readings, for the next class session.

- **Is the time and effort spent on the development of program activities for use with the *ETS* worth the extra work?**

  A number of factors must be considered when determining the cost effectiveness of the ETS in contrast to other more traditional approaches. There is no question that the planning and implementation of almost all activities using the ETS require a substantial commitment of time. Nevertheless, this effort must be equated with the anticipated educational results which might be expected when comparing a number of approaches.

  Some factors that need to be considered in determining whether the ETS might be an effective means of providing educational services to diverse groupings are:

  - Does the activity require a minimum number of participants? Does an off-campus class have 20 or more students before it can be taught in one location?

    Through the use of the ETS, persons from a wide variety of geographic locations can be brought together. No one location needs a minimum number to be a part of the total group. So small schools and locations that have a limited number of persons interested in a topic or class that do not have to be excluded on the basis of numbers.

  - Will the use of the ETS significantly decrease travel costs for either the campus faculty member or participants?

    The travel time and cost is often a major consideration in determining whether certain educational activities will be undertaken. This is the case no matter if it is the instructor who must travel to a specific location in the state or having the students come to the Columbia campus.

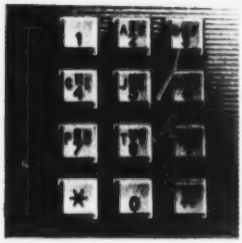
    Often, much of this travel time and money can be greatly reduced through the use of the ETS.

  - Does the ETS provide access to resources which might not be normally available?

    The ETS enables the instructor of a class the use of an endless variety of outside speakers. Any person who has access to a telephone becomes a potential participant in class. This flexibility of resources should be taken into consideration whenever the use of the ETS is considered.

Conclusion

This brief publication should help encourage you to seriously consider ETS in your own individual programs. Recent results of various applications of the ETS approach to education have proven to be very successful. We are only beginning to visualize the great potential this avenue of communication will have for all of us in the future.



Sample Lesson Plan Using The Educational Teleconference System

This section deals with the development and the implementation of a typical lesson using the ETS. It is divided into two areas:

- Student materials
- Teacher lesson plans

A class on reading readiness will be used. Obviously, this discussion can be only a limited example of the many possibilities with ETS. Of course, your selection of specific procedures and activities will be determined by individual class content and learning objectives.

Student Materials

The following is an example of the student materials which might be developed for use with the class on reading readiness. Students would need to have this information far enough in advance of the actual instruction so that they would have adequate time for preparation.

Reading Readiness

I. Purpose

The purpose of this lesson is to develop an understanding of the importance of readiness as a basis for successful reading.

II. Objectives

After completing the reading in this lesson you should be able to:

- Evaluate the following factors in establishing reading readiness—the home, the school, and the community.
- Discuss the prerequisites for reading readiness

and explain their importance in the development of an adequate reading curriculum.

- Identify the strengths and the weaknesses of reading readiness tests as they compare to teacher judgment.
- Consider the question of when children should begin to read, noting the specific factors in a child's background that must be considered.

III. Learning Activities

Read Chapter 3 in *Readings on Reading Instruction*.

If you can visit a local public school's kindergarten or first grade, discuss these with the teacher.

1. The reading readiness program.
2. The commercial materials used in this program.
3. Methods (both formal and informal) currently being used to measure reading readiness.

IV. Commentary

The importance of readiness in determining whether or not the child is able to learn to read cannot be overemphasized. In fact, many reading authorities consider lack of readiness to be the single most common element in reading disability. Frequently teachers assume, often incorrectly, that a child has the physical, social, educational, or emotional skills needed to complete reading assignments at a pre-determined level, when in fact, they lack the readiness preparation needed for success. This misunderstanding of the importance of readiness as the foundation for reading achievement causes many reading problems.

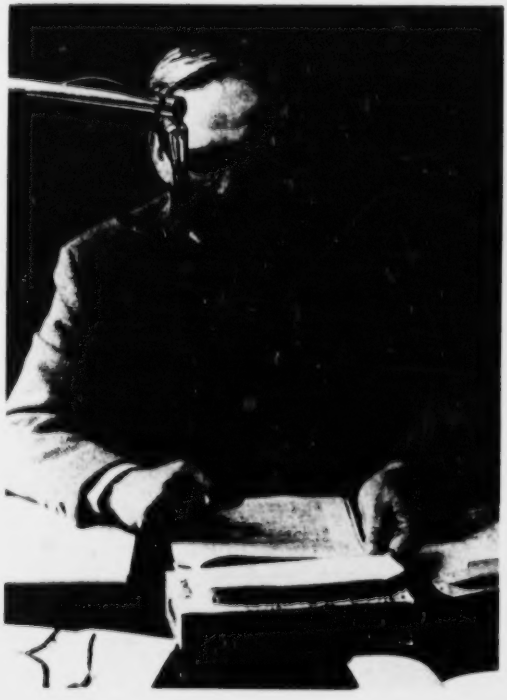
The articles in Chapter III of your textbook describe the role of readiness as it relates to the reading program with emphasis on the importance of the classroom teacher as the key factor in determining whether a child has the necessary background for the particular lesson to be presented. Problem areas such as formal readiness testing, when children should begin to read, and relevant readiness research studies are also discussed in this chapter.

V. Progress check

The following questions have been developed to aid you in your review of this lesson:

(Above) An ETS operator monitors a teleconference using controls on the bridge to adjust for telephone line noises. Operators also can play audio tapes over the bridge and record conference proceedings.

(Right) Presenting a teleconference program from the ETS studio in Whitten Hall with omni-directional microphones let presentors handle notes and visuals with both hands.



- Discuss the role of readiness as it applies to success in reading. What are the implications of your position for classroom implementation?
- Analyze the factors that must be consideed in determining when a child should begin formal reading instruction. Should the grade level of a particular student play an important part in this decision?
- Compare and contrast reading readiness tests and teacher judgment as the basis for making decisions about when a child should begin to read.
- Suggest specific procedures for developing readiness skills needed for reading success.

Please keep these questions in mind as we discuss the area of reading readiness.

VI. Format For Class Using the ETS

We generally try to follow the following outline for our discussion during this class:

- Review the previous discussions we have had on reading education as it relates to our current topic of reading readiness. (teacher and students)
- Brief overview of the area of reading readiness. (teacher)
- Reaction and discussion from Dr. Carl Jones from the University of Texas. (teacher and students)
- Discussion of your reading from Chapter III of your textbook. (teacher and students)
- Discussion of the questions listed in your class outline under Progress Check. (teacher and students)
- Application of what we have learned about reading readiness to our current teaching assignments. (teacher and students)
- Preparation for next class assignment. (teacher)

Teacher's Lesson Plans

This is a brief illustration of the teacher's lesson plans that are used in connection with the previously presented student materials for a lesson on reading readiness.

Lesson Plan

I. Getting started

A. Check each student location.

1. Who is present in class today?
2. Take informal roll.

B. Did everyone receive the materials related to the final exam?
   1. Brief discussion on what should be done to prepare for the exam.
   2. Number of questions, material to be covered, etc.
   3. Date and time for exam.

C. Was everyone able to use the material we discussed last week related to reading assessment with their students? If so, how?

II. Introduce Dr. Jones from the University of Texas who will be our resource person. (located in his office on campus).

III. Brief overview of reading readiness (my responsibility)
   A. Define reading readiness
   B. Controversial area in reading education. . .

(TEACHER'S NOTES CONTINUE HERE)

. . .testing of reading readiness.

J. Summary of reading readiness

IV. Discussion of textbook chapter III
   A. How does your textbook differ on its approach to reading readiness (quote on page 73, middle of the page)
   B. Call on Jan Smith in the class at Madison (first-grade teacher)
      1. How do you promote reading readiness in your class?
      2. What are some problems?
   C. Have each class put transparency #1 on the machine "Principles of Reading Readiness". . .

(TEACHER'S NOTES CONTINUE HERE)

H. . . .conclusions about your textbooks view of reading readiness?

V. Discuss Progress Check Questions (questions listed under #5 from Student Materials)
   A. Call on the panel at Springfield who are going to lead the discussion on these questions.
   B. Conclude and summarize the discussion

The ETS bridge connects all 20 telephone lines plus one studio for a single conference or two simultaneous conferences each using 10 lines plus a studio or four conferences of 5 lines each. The operator monitors the conferences using a headset with an attached microphone.

VI. Application of reading readiness to actual classroom settings

A. Call on the following people for reactions
1. Sandy (Fulton) learning disabilities teacher
2. Richard (Jefferson City) sixth grade
3. Alice (Madison) first grade
4. Bob (Smithtown) reading teacher
5. Sue (St. Louis) second grade

B. How can we apply. . .

(TEACHER'S NOTES CONTINUE HERE)

K. . . .materials and reading readiness.

VII. Introduce topic for the next class (comprehension)

A. Discuss the student materials which were sent to each student.

B. Note the chart in their textbook on page 83.

C. Discuss specific assignments to be given to individual students.

D. Ask for concluding questions, concerns, etc.

Reaction Questionnaire

The primary intent of this publication is to present information on the ETS now in use on the Columbia campus of the University of Missouri and to suggest some possible ways faculty might want to include this form of communication in future educational planning. Because the ETS is a relatively new and unique approach to providing various types of educational experiences this publication should be viewed as a beginning manual rather than an accomplished, comprehensive one. The reader is encouraged to submit reactions to suggested activities and to explain activities and ideas which have survived the test of experience when used with the ETS.

This questionnaire has been designed to obtain this information from campus faculty with the hope there can be an increasing interest in the use of the ETS based on shared experiences.

1. **Briefly describe your experiences using the ETS.**

2. **What were the successes as well as the problems you had using the ETS?**

3. **What activities and approaches did you use that you considered very successful?**

4. **What instructional obstacles did you have to overcome? How did you do it?**

5. **What specific advice would you give to others contemplating the use of ETS for instruction?**

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